

## **REMARKS**

Applicants request a reconsideration of the original reissue declaration filed with the application.

In prosecuting US Patent No. 5,993,543, only method claims were prosecuted while the application had sufficient disclosure and support in the drawings and specification to directly secure apparatus claims. Accordingly, an error in the original patent application was that the claims only defined method steps without defining the apparatus for providing the production procedures. To cure that error, the present reissue application has been filed to add apparatus claims and it is believed that the original reissue declaration adequately describes this issue as follows:

“The claims defined method steps without defining the apparatus for providing the production procedure.”

However, if the Examiner believes that this error should be further elaborated upon, the undersigned attorney would appreciate a telephone conference and a replacement declaration will be provided.

It is believed that the issue on the reissue declaration under 35 U.S.C. § 251 has now been adequately explained.

Claims 28 and 29, remain in the application, and are directed to an embodiment shown, for example, in Figure 7 and a description can be found starting with Column 10, line 23 through Column 11, line 10. In this third embodiment, it is possible to provide a protective layer of an alkaline earth oxide with a (110)-face orientation. The advantages of such a face orientation, for example, magnesium oxide is set forth on Column 6 and as noted on Column 10, line 53 through

55, these advantages are also achieved with the apparatus of Figure 7 in providing a (110)-face orientation.

The Office Action acknowledged that the *Lee et al.* publication No. WO 96/32520 did not teach nor suggest the orientation of a crystal grown layer as set forth in the claims. It was contended, however, that in the absence of any unexpected results that it would simply be obvious to provide a (110)-face orientation on a plasma display panel protective layer of approximately 5000 Å.

However, the *Lee et al.* reference is directed to a thin coat multi-layer anti-reflection coating to provide low scatter and low light lost; see Column 9, lines 34-39. It does not address nor recognize the problems of a (111)-face orientation protective layer of approximately 5000 angstroms in thickness for a plasma display panel. The U.S. Patent Office is cognant that frequently the recognition of the problem can be an ingredient in the invention, as noted in the case of *In re Zukor*, 111 F.3d 887, 42 USPQ2d 1476, 1479 (Fed. Cir. 1977):

Finally, to say that the missing step comes from the nature of the problem to be solved begs the question because the Board has failed to show that this problem has been previously identified anywhere in the prior art. *See In re Spinnable*, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969) ("[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified."

Applicant respectfully traverses this rejection and as can be seen throughout the present specification, the conventional protective layer of magnesium oxide is formed by a vacuum vapor deposition method and has produced a (111)-crystal face orientation that has not been as satisfactory in it's performance characteristics as would be desired in the current field of plasma display panels, while the present invention provides a superior improved performance. Certainly

there can be no question that this is a highly competitive field with numerous scientists and engineers attempting to provide commercially viable plasma display panels.

As noted on Column 6 of our specification, the crystals of an alkaline earth oxide are purposefully grown in a slow fashion to form a dense protective layer of a different orientation than that of the previous conventional comparison examples. See for example, the comparative Example 15 in Table 2, and Examples 67 and 69 in Table 4 of our present disclosure. These examples set forth the results with the (111)-crystal face orientation.

The present invention with a (110)-crystal face orientation has an advantage of providing a very dense formation of a protective layer to be able to protect the dielectric glass layer with improved sputtering resistance. Additionally, our present inventions assists in reducing the driving voltage of the plasma display panel and it can improve the panel brightness because of its large emission coefficient ( $\gamma$  value) of secondary electrons.

The conventional (111)- face orientation had a tendency to react with water content in the air to form hydroxides which is a known problem in plasma display panels. The protective layer of our present invention as formed by our apparatus significantly reduces and removes this problem.

A magnesium oxide protective layer with a conventional (111)-face orientation can have a heat resistance up to 350°C. Our improved (110)-face orientation protective layer, formed by our apparatus, will have a significantly higher heat resistance and can enable heat treatment to be performed at temperatures of about 450°C. Finally, the aging process time, which is important in extending the life of a plasma display panel, can be considerably shortened in time period after the bonding of the substrate panels compared to that of the prior art configurations.

The advantageous results of our present invention can be seen, for example, in Examples 18-22, 25, 26, 30, 31, and 34 among others.

Thus, Applicant has already provided in the specification more than adequate evidence of unexpected results that have been achieved as a result of the apparatus of the present invention.

The apparatus defined in our present claims is suitable for achieving a dense protective layer with a (110)-face orientation for a plasma display panel and can achieve the advantageous results set forth in our specification.

The Office Action cited the *Lee et al.* U.S. Patent No. 5,849,370 as rendering obvious the present invention.

The Office Action contended that the *Lee et al.* reference taught a magnesium oxide protective layer and cited in particular the disclosure on Column 5. Reviewing Column 5, lines 25-28 does not disclose a magnesium oxide layer, but rather only a magnesium fluoride coating. Additionally, these coatings are primarily directed to providing a multi-layer optical coating to prevent reflection, for example, on a lens substrate. Additionally, the substrate is heated to approximately 200°C, as can be seen in Column 3, line 66-67.

Thus, the Office Action is incorrect in stating that *Lee et al.* teaches a magnesium oxide protective layer. It actually teaches a magnesium fluoride anti-reflection coating layer which will be generally one of many layers to form an appropriate quarter wave length design as known in the optical field. This is consistent with the desire set forth in Column 2, lines 13-14 to provide a thin film formation for low scatter, low loss dense films.

The present invention provides a particular desired face orientation of the crystal structure for magnesium oxide with a sufficient amount of magnesium oxide deposited to form

approximately 5000 angstroms of a protective layer at a temperature of approximately 150°C as set forth in the proposed new Claim 31.

It is believed that the amendment of Claim 28 and the subject matter set forth in the newly drafted Claims 30 and 31 more than adequately distinguish over the *Lee et al.* disclosure.

As mentioned above, *Lee et al.* is not directed to solving a problem in a plasma display panel by providing an adequate protective layer with a particular crystal orientation. *Lee et al.* doesn't even address the use of a magnesium oxide, let alone the desired crystal orientation.

It is believed the case should be in condition for allowance and early notification of the same is requested. If the Examiner believes that a telephone interview will help further the prosecution of this case, he is respectfully requested to contact the undersigned attorney at the listed telephone number.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on October 4, 2004.

By: Marc Fregoso

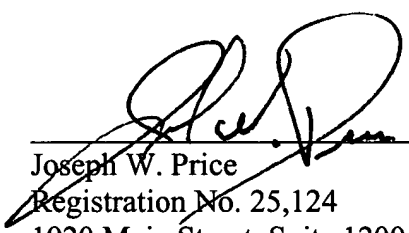
Marc Fregoso

Signature

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Very truly yours,

**SNELL & WILMER L.L.P.**

  
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